

### ABSTRACT

A motor vehicle transfer case includes an interaxle differential driven by an input shaft and an electromagnetic synchronizer and brake for synchronizing and braking rotation of the input and secondary output shaft. An electromagnetic coil is mounted within the transfer case about the input shaft and surrounded by a freely rotatable rotor. A circular armature is coupled to a chain drive sprocket adjacent the rotor and the electromagnetic coil. The chain drive sprocket is driven by the secondary output of the interaxle differential, the other output of which drives the primary transfer case output. Energization of the electromagnetic coil attempts to synchronize and brake rotation of the input shaft and the chain drive sprocket and secondary driveline and maintains the slack or lash in the driveline in a constant state to eliminate noise and driveline transients.